Review of Draft EA and Investigational EA of Oxitec OX513A GE male-sterile Aedes aegypti

Chris Wozniak / John Kough – 020416 – Main points to consider / suggested edits

Please see comments / edits on the documents themselves in track changes.

Investigational Oxitec draft EA

10.4.1.5Blood feeding females for egg production

1.) Need some indication that the defibrinated blood used for feeding females in the insectary is screened for viruses / parasites, or that the mosquitoes are screened later in the process.

2.) Figure [SEQ Figure * ARABIC] Insemination Capacity of OX513A Males (from Bargielowski *et al.*, 2011a).
Some apparent discrepancy between longevity of male mosquitoes and the graphs presented (i.e., 2-3 days vs 18 – 24 days) Perhaps this reflects the difference between wild type and insectary-reared mosquitoes and added in the difference between OX513A and wild type Ae. aegypti, but some explanation or clarification seems warranted.

3.) 13.4.2.1 Page 74. "With the exception of a few examples of NST events in multicellular organisms under specific circumstances, NST has yet to be definitively demonstrated in eukaryotes in nature" - Not so sure this statement is accurate. Moran et al, Science 2010, DOI: 10.1126/science.1187113 suggest transfer of genes from fungi to aphids. Also, Crisp et al. Genome Biology (2015) 16:50, DOI 10.1186/s13059-015-0607-3; Acuna et al., 2012, [HYPERLINK "http://www.pnas.org/cgi/doi/10.1073/pnas.1121190109"] and others.

Commented [WC1]:

Oxitec Draft EA Comments

12.1.2.1 Occurrence of natural disasters – Mention in the Oxitec draft EA about hurricane contingency plans, but not in the FDA draft. Might be worth an indication that this was considered as adequate to prevent escape since some folks will undoubtedly be concerned.

"The HRU is located in Marathon, in a Category 4 hurricane-protected building and a hurricane preparedness plan is in place, where adult insects will be killed within 36 hours of a hurricane strike predicted by the U.S. National Weather Service.

A hurricane also has the potential to interrupt the investigational field trial for extended time periods. If this is the case, then either the timeframe of the study may need to be extended to allow sufficient sustained releases of OX513A to suppress the local population of *Ae.aegypti* or the investigational field trial will be abandoned, depending on the severity of the disruption encountered."

Page 14. – The lifespan of OX513A males and females is indicated at 2-3 days vs 60 or 68 days for wild type males and females, respectively. The paragraph flow does not really address this here although there is some explanation in the Investigational EA. Given the great disparity in longevity, it seems to me to beg for at least some explanation as to why the big difference. It does help though in the sense that those that worry the OX513A strain will persist should be comforted by this finding.

Page 16. – Insecticide Tolerance
Several insecticides are noted as used by FKMCD, including Bti and spinosad, but efficacy data in the Investigational EA do not mention Bti and spinosad. Not a big deal, but if it is known that OX513A or Ae. aegypti in general are susceptible to these two pesticides, then it is worth noting this fact. Many homeowners may relate to Bti in particular.

Page 21 and 29. – Pollination by mosquitoes – The statement that Ae. aegypti may not have been in the ecosystem long enough to co-evolve with a plant species for pollination purposes may not be a convincing argument as other species with less time in contact with our flora have managed to be efficient pollinators of native and introduced plants. Maybe instead infer that Ae. aegypti has no known function as a pollinator and any pollination it happens to effect would be incidental and unimportant to the plant species survival. There is at least one other Aedes spp. which is important for orchid pollination in bogs of the north, but that is an unusual case.

Page 32. – Phrasing of sentence describing possible transfer of infectious agents to animals needs reworking for the non-science reader. Also, did Oxitec buy blood screened for viruses / parasites or perhaps screen themselves?